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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/656,353      | 09/05/2003  | Percy Heger          | A35976              | 7817             |

21003 7590 10/04/2005

BAKER & BOTTS  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER

CHEN, KIN-CHAN

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1765

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/656,353

Applicant(s)

HEGER ET AL.

Examiner

Kin-Chan Chen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, "a clear signature of an end point" is vague and indefinite because it is a relative term with no basis for comparison. Thus the metes and bounds of the claim are unclear.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. Claims 1-10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Koemtzopoulos et al. (US 6,017,414; hereinafter "Koemtzopoulos").

In a method of detecting and controlling the cleaning of the processing chambers that are used for etching process, Koemtzopoulos teaches that a DC bias voltage of a plasma generator may be monitored during a cleaning etching process. The DC bias voltage may be measured between ground and an electrode (so-called decoupling electrode) of the plasma generator **disposed within the processing chamber (col. 3, lines 8-14)**. The DC bias voltage may be compared to a predetermined value representing a clean processing chamber. The plasma cleaning etching process may be terminated when the DC bias voltage reaches the predetermined value. When the process is terminated, it is expected that the supply of process gases is to be disconnected and the plasma generator is to be deactivated. Koemtzopoulos also teaches DC bias voltage is measured continuously and at discrete intervals. The DC voltage profile (or a plurality of DC voltage profiles) of a plasma cleaning etching process may be stored. The stored DC voltage profile may be compared with a previously stored DC voltage profile. The comparison performed for the same process gases and process parameters is expected. See col. 3, lines 8-14, 50-57, col. 6, lines 11-33; col. 7, lines 4-19; col. 8, lines 29-47.

Koemtzopoulos illustrates some examples of the results in Figs. 2 and 3. The results appear, to one with ordinary skill in the art, to have a clear signature of an endpoint of the cleaning etching process.

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*Application claims are to be given their broadest reasonable interpretation consistent with the specification. In re Sneed, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983). The broad interpretation of the instantly claimed limitations "a clear signature" can encompass the results shown in Figures 2 and 3 of Koemtzopoulos. Specification must clearly set forth an explicit definition. Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 989 (Fed.Cir. 1999).*

As to claim 10, Koemtzopoulos teaches that the termination of the cleaning etching process may be delayed for a selected time after the DC bias voltage reaches the predetermined value (col. 7, lines 55-60).

### ***Response to Arguments***

4. Applicant's arguments filed August 22, 2005 have been fully considered but they are not persuasive.

Applicant has argued that Koemtzopoulos measures external tap voltage rather than the electrode within the processing chamber. It is not persuasive. As has been stated in the office action, The DC bias voltage may be measured between ground and a electrode (so-called decoupling electrode) of the plasma generator **disposed within the processing chamber (col. 3, lines 8-14).**

Applicant has argued that the measurement from Koemtzopoulos does not provide an unambiguous determination of the cleaning endpoint. It is not persuasive. As stated in the office action, Koemtzopoulos illustrates some examples of the results in Figs. 2 and 3. The results appear, to one with ordinary skill in the art, to have a clear signature of an endpoint of the cleaning etching process. See also the case law cited above.

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

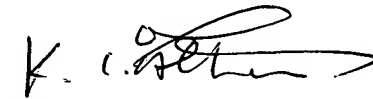
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kin-Chan Chen whose telephone number is (571) 272-1461. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

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information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*September 29, 2005*



Kin-Chan Chen  
Primary Examiner  
Art Unit 1765